

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A polyethylene wax defined by the following features (i) to (vi):

(i) said polyethylene wax is an ethylene homopolymer or a copolymer of ethylene and at least one olefin selected from α -olefins of 3 to 20 carbon atoms,

(ii) a ratio (M_w/M_n) of the weight-average molecular weight (M_w) to the number-average molecular weight (M_n), as measured by gel permeation chromatography (GPC), is in the range of 1.7 to 4.0,

(iii) the softening point is not higher than 105°C,

(iv) the penetration hardness is not more than 10 dmm,

(v) a ratio (M_z/M_w) of a z-average molecular weight (M_z) to a weight-average molecular weight (M_w), as measured by gel permeation chromatography (GPC), of 1.5 to 2.0, and

(vi) a density of 880 to 910 kg/m³.

2. (Previously Presented) The polyethylene wax as claimed in claim 1, which is a copolymer of ethylene and at least one olefin selected from α -olefins of 3 to 20 carbon atoms and has a ratio (M_w/M_n) of a weight-average molecular weight (M_w) to a number-average molecular weight (M_n), as measured by gel permeation chromatography (GPC), of 2.6 to 4.0, an intrinsic viscosity $[\eta]$, as measured in decalin at 135°C, of 0.15 to 0.50 dl/g, and an acetone extraction quantity of not more than 6% by weight, wherein the softening point (T_s (°C)) and the penetration hardness (Y (dmm)) satisfy the following relationship (I):

$$-0.53T_s + 62 > Y > -0.53T_s + 53 \quad (I).$$

3. (Previously Presented) The polyethylene wax as claimed in claim 1, which has a ratio (M_w/M_n) of a weight-average molecular weight (M_w) to a number-average molecular weight (M_n), as measured by gel permeation chromatography, of 1.7 to 3.3, a softening point of 88 to 105°C, a penetration hardness of not more than 7 dmm and an intrinsic viscosity $[\eta]$, as measured in decalin at 135°C, of 0.05 to 0.20 dl/g.

4. (Original) The polyethylene wax as claimed in claim 1, which is prepared by the use of a metallocene catalyst.

5-9. (Canceled)

10. (New) A method for producing the polyethylene wax of claim 1, which comprises homopolymerizing ethylene or copolymerizing ethylene and at least one α -olefin selected from α -olefins of 3 to 20 carbon atoms, in the presence of a metallocene catalyst.